RUST GEOTECH INC.

Spectral Gamma-Ray Borehole
Log Data Report

Borehole 41-07-02

Log Event A

Borehole Information

Farm : SX	**Tank :** SX-107	**Site Number :** 299-W23-74
N-Coord : 35,383	**W-Coord :** 75,631	**TOC Elevation :** 663.19
Water Level, ft :	**Date Drilled :** 2/19/1962	

Casing Record

Type : Steel-welded	**Thickness :** 0.280	**ID, in. :** 6
Top Depth, ft. : 0	**Bottom Depth, ft. :** 75	

Equipment Information

Logging System : 2	**Detector Type :** HPGe	**Detector Efficiency:** 35.0 %
Calibration Date : 03/1995	**Calibration Reference :** GJPO-HAN-1	

Logging Information

Log Run Number : 1	**Log Run Date :** 6/7/1995	**Logging Engineer:** Mike Widdop
Start Depth, ft.: 0.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 76.5	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

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Analysis Information

Analyst : S.E. Kos

Data Processing Reference : Data Analysis Manual Ver. 1 Analysis Date : 10/2/1995

Analysis Notes :

This borehole was logged in one logging run. The pre- and post- verification spectra indicate that the logging system was operating properly. The energy drift observed throughout the logging run exceeded the search parameters of the processing software; therefore, multiple energy calibrations were required to process the data.

The casing thickness is 5/16 in. (0.3125 in.). The casing correction used to process the data was for 0.33-in. casing; therefore, a slight over-estimation of radionuclide activity was calculated. The borehole was dry; no water correction was required.

The only man-made radionuclide identified was Cs-137. It was detected from ground surface to a depth of 24 ft, from 57 to TD, and intermittently at low activity throughout the borehole. The maximum activity of 6 pCi/g was measured at ground surface.

Additional details regarding interpretation of data for this borehole are provided in the Tank Summary Data Report for tank SX-107.

Log Plot Notes:

Three log plots are provided. The Cs-137 activity is plotted on a separate plot to provide details of activity and distribution.

The natural gamma-ray logs show the activities of the naturally occurring radionuclides potassium (K-40), uranium (U-238), and thorium (Th-232). The KUT plot is provided to allow correlation of lithologic features between boreholes. The KUT activities observed in this borehole are typical for Hanford Site sediments.

A combination plot incorporates the Cs-137 and KUT log data with the total gamma-ray count rate derived from the spectral gamma-ray data and the gross gamma-ray data acquired with the WHC Tank Farm gross gamma-ray logging systems. This plot allows correlation of the Cs-137 contamination zones with lithologic features and with the gross gamma-ray historic record.

The statistical uncertainty in a measurement is represented on the log plots by uncertainty bars where appropriate. This uncertainty is reported at the 95-percent confidence interval. The minimum detectable activity (MDA) of a radionuclide represents the lowest activity at which positive identification of a gamma-ray peak is statistically defensible. The MDA values are indicated on the log plots by open circles. If the reported activity is slightly above the MDA, the 95-percent confidence interval may extend below the MDA value and the measurement cannot be stated with 95-percent confidence.

The Tank Farm gross gamma-ray plot is produced from the most recent data available from WHC. No corrections other than scale adjustments for plotting have been made to the data.